

Classification cancelled

or changed to

AUTH:

By

Issue of 16 Nov 59.

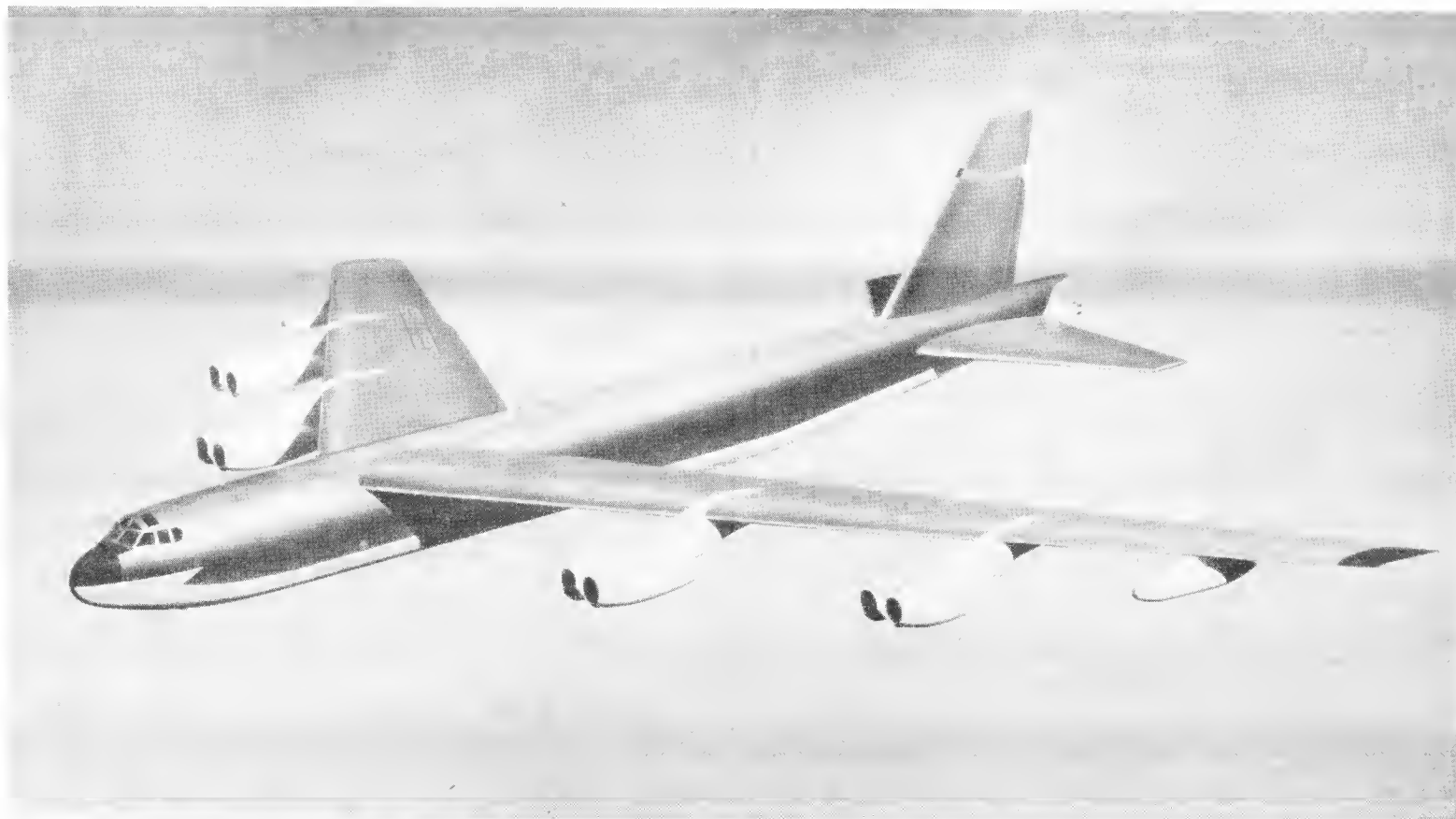
By *G. J. J. J.*

12/7/60

*Unclassified*

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SERVICE



## Standard Aircraft Characteristics

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

**B - 52 G**  
**STRATOFORTRESS**  
**Boeing**

EIGHT J57-P-43W

PRATT & WHITNEY

*5700-4984*

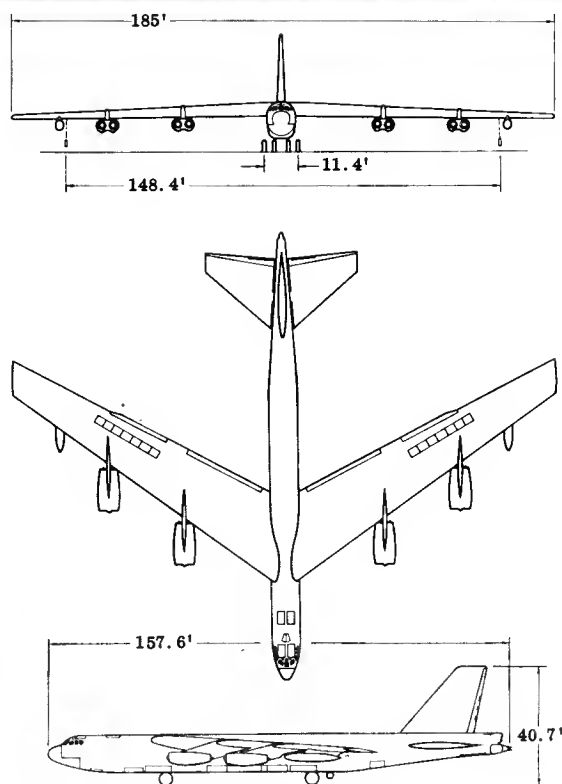
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B-52G

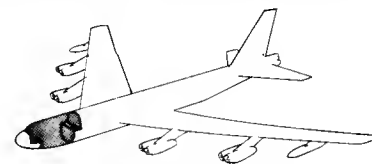
*5th Ed Addendum Nr 10*

*Green Post*

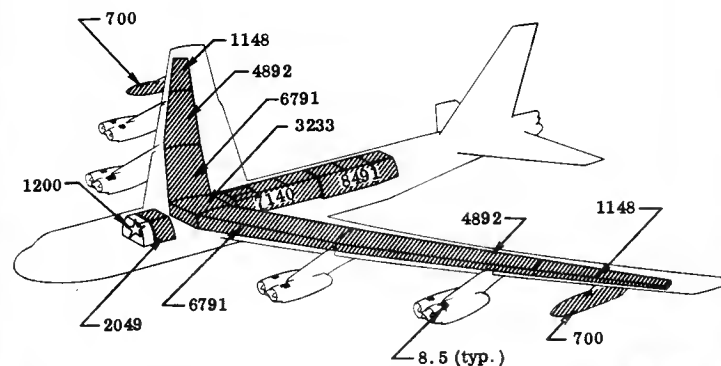
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Wing Area .... 4000 sq. ft.  
Aspect Ratio ..... 8.55

Wing Section ..... (root) BAC 233  
(tip) BAC 236  
M.A.C ..... 275.5"



Pressurized Areas

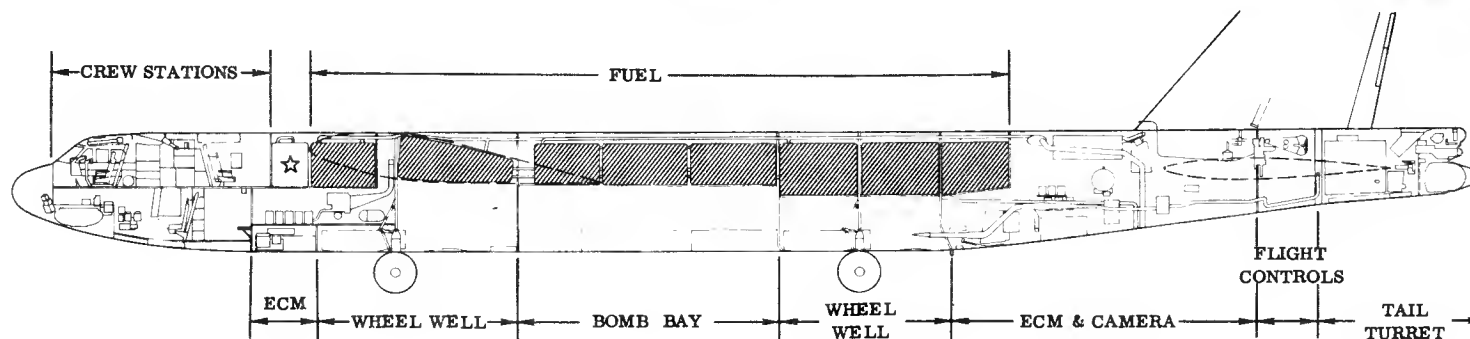


Fuel (Gal.)



Water (Gal.) ☆

Oil (Gal.)



B-52G

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**POWER PLANT**

Nr. & Model..... (8) J57-P-43W  
 Mfr..... Pratt & Whitney  
 Eng. Spec. Nr..... A-1704-C  
 Type..... Axial  
 Length..... 166.3 in.  
 Diameter..... 40.5 in.  
 Weight (Dry)..... 3870 lb.  
 Tail Pipe..... Fixed Area  
 Augmentation..... Water

**ENGINE RATINGS**

S. L. Static LB. — RPM\* — MIN.

Max: \*\* 13,750 — 6900/9650 — 5  
 Mil: 11,200 — 6400/9650 — 30  
 Nor: 9,500 — 6100/9350-Cont

\* First figure represents low pressure spool, second figure represents high pressure spool.

\*\* With water injection (available for T.O. only)

**DIMENSIONS**

Wing  
 Spar..... 185.0'  
 Dihedral(chord plane)..... 2°30'  
 Incidence (root)..... 6°  
 Sweepback (LE)..... 36°58'  
 Length..... 157.6'  
 Height(overall)..... 40.7'  
 Height(fin folded)..... 20.0'  
 Tread(outrigger)..... 148.4'  
 Tread(main gear)..... 11.4'

**Mission and Description**

Navy Equivalent: None

Mfr's. Model: 464-253

The principal mission of the B-52G is the destruction of surface objectives. The normal crew of six consists of pilot, copilot, (2) bombardier-navigators, ECM operator, and gunner. Automatic cabin pressurization, heating, and ventilation are provided for crew comfort. Ejection seats for emergency escape are provided for all the crew. Flight control is accomplished by the use of spoilers on the wing, elevators on the all-movable horizontal tail, and a rudder on the fixed vertical tail. The spoilers also function as airbrakes in descents and landing.

Other features are single-point ground and air refueling, braking parachute for decreasing landing roll distance, steerable landing gear to aid in cross-wind take-off and landing, and a liquid oxygen system. Major differences from the B-52F include reduced span fin, deletion of ailerons, 700 gallon fixed external tanks, enlarged nose radome, relocation of the gunner, integral wing fuel tanks, increased maximum gross weight, and reduced empty weight.

**Development**

Design Initiated..... Jun 56  
 First Flight..... Oct 58  
 First Acceptance..... Oct 58

**WEIGHTS**

Loading	LB	L. F.
Empty (C).....	154,864	-
Basic (C).....	161,204	-
Design.....	*500,000	-
Combat.....	**276,900	3.5
Max Takeoff.....	***498,000	1.8
Design In-Flight.....	±450,000	2.0
War Emergency In-Flight.....	±498,000	1.8
Design Landing.....	270,000	-
(C) Calculated		
* Maximum Taxi Weight		
** For Basic Mission		
*** Excludes 10,000 lb water		
± Limited by Structure		

**F U E L**

Location	Nr. Tanks	Gal
Wing, Ext.....	2	1400
Wing, Out bd.....	2	2296
Wing, Inbd.....	4	23,366
Wing, Ctr.....	1	3233
Fus, Fwd.....	1	2049
Fus, Mid.....	3	7140
Fus, Aft.....	3	8491
Total		41,975
Grade.....		JP. 4
Spec.....		MIL-F-5624
<b>OIL</b>		
Nacelle.....	8	Total 68
Grade.....		Synthetic
Spec.....		MIL-L-7808C
Water		
Fus, Fwd.....	1	1200

**B O M B S**

Nr.	Class (lb)
27 (Family of Clusters).....	1000
Special Weapons	
2.....	MK 21
2.....	MK 15

Note: Space and structural provisions for Hound Dog and Quail Systems.

**G U N S**

Nr.	Type	Size	Rds. Ea.	Loc
4.....	M-3	50cal.	600	Tail, tur.

**C A M E R A S**

Nr.	Type	Lens
1.....	0-32	Radar Recording
1.....	K-38	36"
1.....	K-17C	6" or
1.....	K-17D	6"

**ELECTRONICS**

UHF Command Set.....	AN/ARC-34
Aux. UHF Radio.....	AN/ARC-34
Liaison.....	AN/ARC-21X
Emergency Keyer.....	AN/ARA-26
Interphone.....	AN/AIC-10A
Omni Range Receiver.....	AN/ARN-14
Glide Path Receiver.....	AN/ARN-31
Marker Beacon Receiver.....	AN/ARN-32
IFF (air to ground).....	AN/APX-25A
Radar Beacon.....	AN/APN-69
ECM Trans (14).....	AN/ALT-6B
ECM Recv'r.....	AN/APR-9
ECM Recv'r.....	AN/APR-14

See page 6 for additional equip.

# Loading and Performance—Typical Mission

C O N D I T I O N S			BASIC MISSION I	DESIGN LOAD II	MAX. BOMB LOAD III	FERRY RANGE IV	
TAKE-OFF WEIGHT	⑤ ⑦	(lb)	450,000	450,000	450,000	450,000	
Fuel at 6.5 lb/gal (grade JP-4)		(lb)	278,796	271,096	252,796	288,796	
Payload (Bombs)		(lb)	10,000	17,700	35,400	None	
Wing loading		(lb/sq ft)	112.5	112.5	112.5	112.5	
Stall speed (power off)	⑧	(kn)	147	147	147	147	
Take-off ground run at SL	①	(ft)	6 650	6 650	6 650	6 650	
Take-off to clear 50 ft.	①	(ft)	8 750	8 750	8 750	8 750	
Rate of climb at SL	③	(fpm)	2 425	2 425	2 425	2 425	
Rate of climb at SL (one eng. out)	②	(fpm)	2 770	2 770	2 770	2 770	
Time: SL to 20,000 ft.	③	(min)	9.7	9.7	9.7	9.7	
Time: SL to 30,000 ft.	③	(min)	16.5	16.5	16.5	16.5	
Service ceiling (100 fpm)	③	(ft)	38,400	38,400	38,400	38,400	
Service ceiling (one eng. out)	②	(ft)	38,000	38,000	38,000	38,000	
COMBAT RANGE	④	(n. mi)	---	---	---	8 200	
COMBAT RADIUS	④	(n. mi)	3 915	3 795	3 510	---	
Average cruise speed		(kn)	454	454	454	454	
Initial cruising altitude		(ft)	33,400	33,400	33,400	33,400	
Target speed	③	(kn)	476	476	476	476	
Target altitude		(ft)	46,150	45,900	45,250	---	
Final cruising altitude		(ft)	51,750	51,750	51,800	51,650	
Total mission time		(hr)	17.30	16.77	15.51	18.10	
COMBAT WEIGHT		(lb)	276,900	272,750	263,700	180,300	
Combat altitude		(ft)	46,150	45,900	45,250	51,650	
Combat speed	②	(kn)	496	498	505	509	
Combat climb	②	(fpm)	780	905	1 175	1 360	
Combat ceiling (500 fpm)	②	(ft)	47,400	47,700	48,400	56,000	
Service ceiling (100 fpm)	③	(ft)	48,150	48,450	49,200	56,300	
Service ceiling (one eng. out)	③	(ft)	46,300	46,600	47,350	54,800	
Max rate of climb at SL	②	(fpm)	5 980	6 075	6 300	9 200	
Max speed at optimum alt.	② ⑤	(kn/ft)	553/20,500	553/20,500	553/20,500	553/20,550	
Basic speed at 35,000 ft.	②	(kn)	523	523	524	528	
LANDING WEIGHT		(lb)	179,800	179,400	179,100	180,300	
Ground roll at SL		(ft)	2 060	2 060	2 060	2 090	
Ground roll (auxiliary brake)	⑥	(ft)	1 820	1 820	1 820	1 850	
Total from 50 ft.		(ft)	3 600	3 600	3 600	3 630	
Total from 50 ft. (auxiliary brake)	⑥	(ft)	3 400	3 400	3 400	3 420	

NOTES

- ① Maximum Power  
 ② Military Power  
 ③ Normal Power  
 ④ Detailed descriptions of Radius and Range missions are given on page 6

- ⑤ Limited by structure (Load Factor = 2.0)  
 ⑥ With drag chute  
 ⑦ Does not include 10,000 lb water  
 ⑧ Initial buffet, flaps down, S. L.

Performance Basis:  
 (a) Data source: Flight test polar and engine spec. data.

## SUPPLEMENTAL

## Loading and Performance — War Emergency

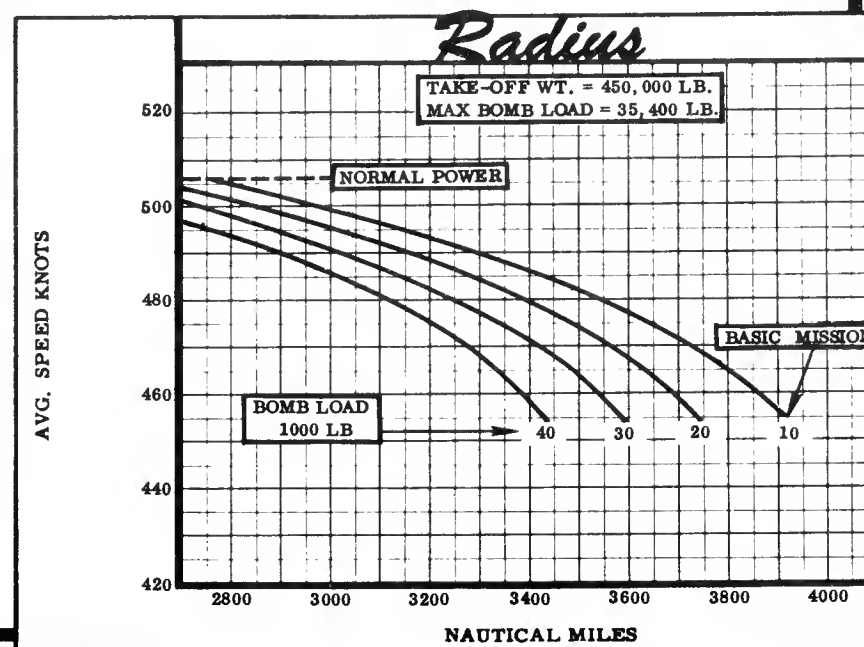
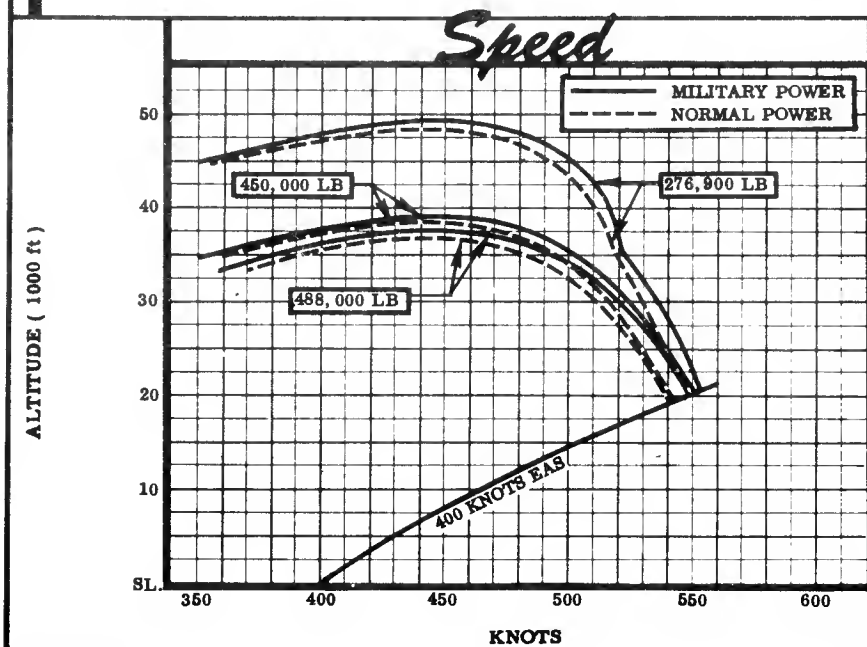
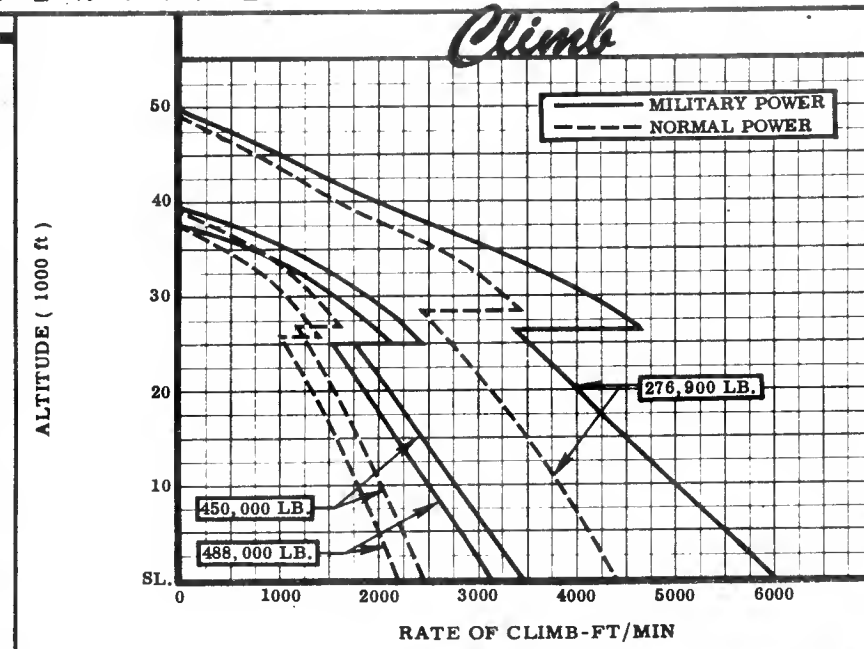
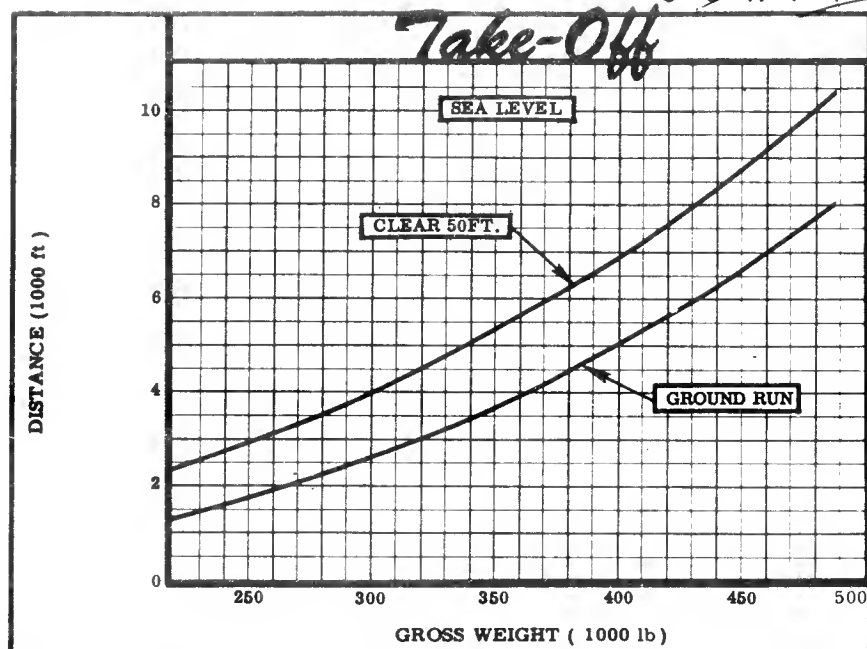
C O N D I T I O N S			BASIC MISSION I	DESIGN LOAD II	MAX. BOMB LOAD III	FERRY RANGE IV	
TAKE-OFF WEIGHT	⑦	(lb)	483,041 ⑥	488,000 ⑤	488,000 ⑤	473,041 ⑥	
Fuel at 6.5 lb/gal		(lb)	311,637	309,096	290,796	311,837	
Payload (Bombs)		(lb)	10,000	17,700	35,400	None	
Wing loading		(lb/sq ft)	120.7	122.0	122.0	118.2	
Stall speed (power off)	⑧	(km)	152	153	153	151	
Take-off ground run at SL	①	(ft)	7 800	8 000	8 000	7 450	
Take-off to clear 50 ft.	①	(ft)	10,200	10,400	10,400	9 750	
Rate of climb at SL	③	(fpm)	2 200	2 170	2 170	2 270	
Rate of climb at SL (one eng. out)	②	(fpm)	2 250	2 480	2 480	2 590	
Time: SL to 20,000 ft.	③	(min)	10.9	11.0	11.0	10.5	
Time: SL to 30,000 ft.	③	(min)	16.4	18.7	16.7	17.8	
Service ceiling	③	(ft)	36,650	36,600	36,600	37,350	
Service ceiling (one eng. out)	②	(ft)	36,500	36,300	36,300	37,000	
COMBAT RANGE	④	(n. mi)	-----	-----	-----	8 625	
COMBAT RADIUS	④	(n. mi)	4 220	4 155	3 675	-----	
Average cruise speed		(km)	454	454	454	454	
Initial cruising altitude		(ft)	31,650	31,650	31,650	32,300	
Target speed	③	(km)	476	476	476	-----	
Target altitude		(ft)	45,300	44,900	44,300	-----	
Final cruising altitude		(ft)	51,550	51,550	51,600	51,550	
Total mission time		(hr)	18.6	18.3	17.1	19.0	
COMBAT WEIGHT		(lb)	286,650	286,480	277,398	161,471	
Combat altitude		(ft)	46,300	44,900	44,300	51,550	
Combat speed	②	(km)	496	499	505	509	
Combat climb	②	(fpm)	785	890	1 140	1 365	
Combat ceiling	②	(ft)	46,600	46,700	47,400	55,650	
Service ceiling	③	(ft)	47,300	47,400	48,150	56,200	
Service ceiling (one eng. out)	③	(ft)	45,450	45,600	46,300	54,700	
Max rate of climb at SL	②	(fpm)	5 730	5 770	5 980	9 150	
Max speed at optimum alt.	②	(km/ft)	553/20,500	553/20,500	553/20,500	553/20,500	
Basic speed at 35,000 ft.	②	(km)	523	523	523	528	
LANDING WEIGHT		(lb)	161,487	181,330	181,011	181,471	
Ground roll at SL		(ft)	2 100	2 100	2 100	2 100	
Ground roll (auxiliary brake)	⑥	(ft)	1 660	1 860	1 660	1 660	
Total from 50 ft.		(ft)	3 650	3 650	3 650	3 650	
Total from 50 ft. (auxiliary brake)	⑥	(ft)	3 440	3 440	3 440	3 440	

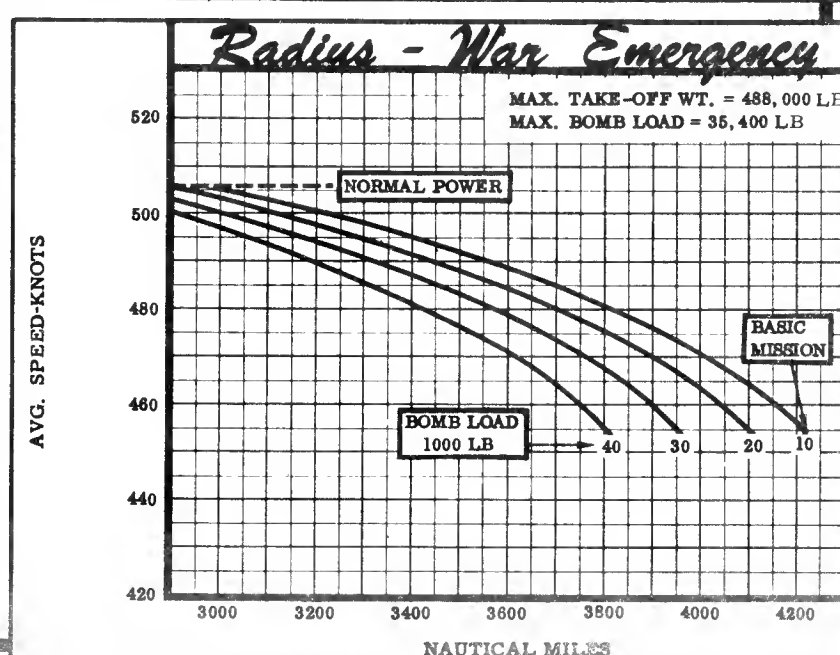
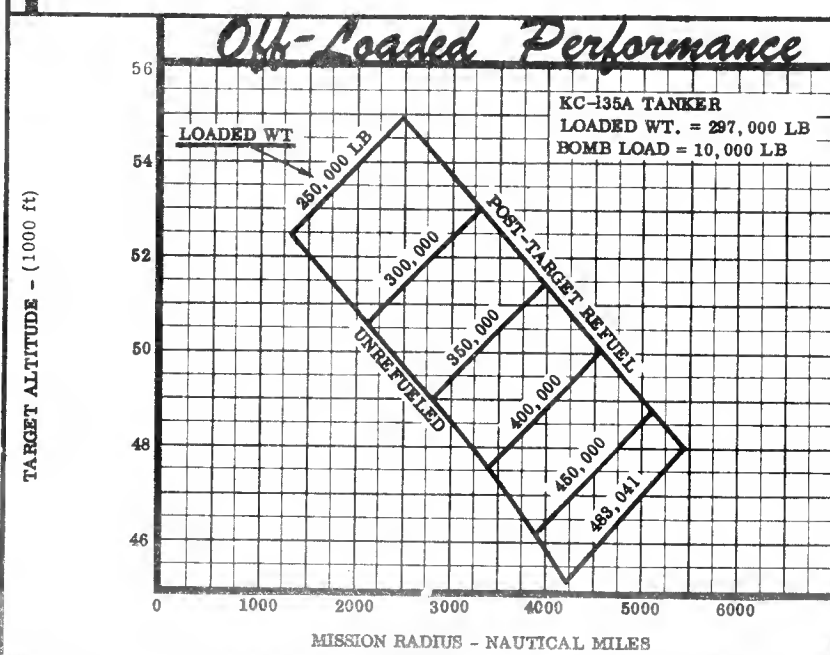
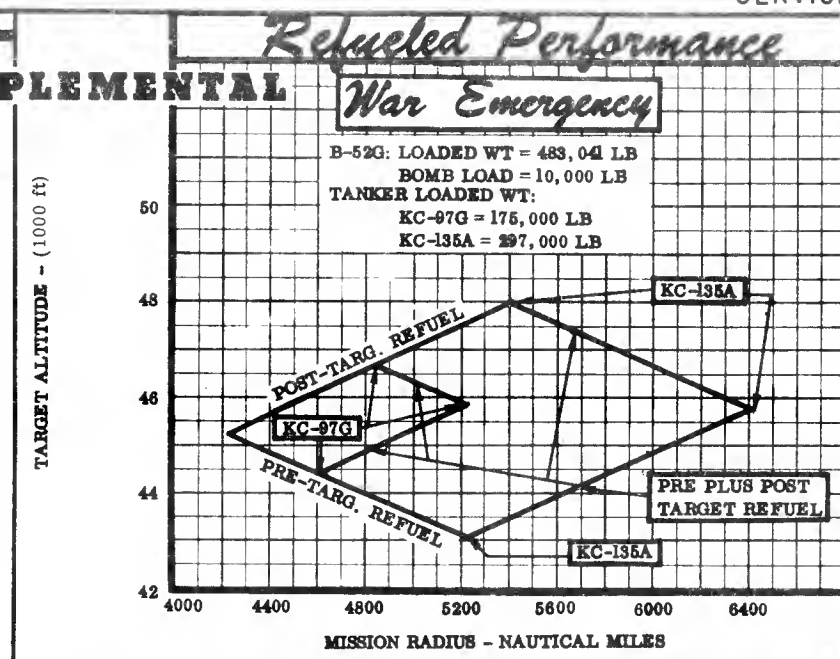
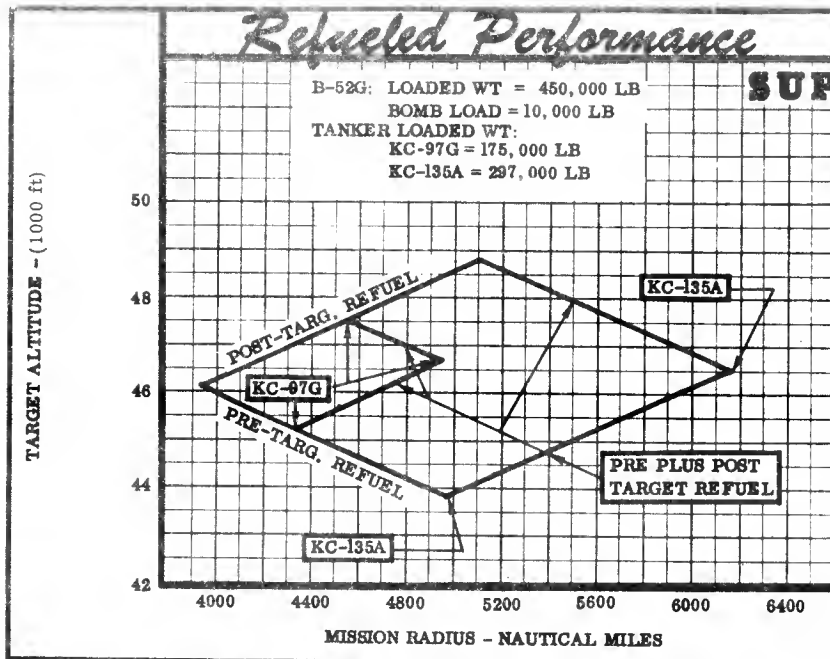
NOTES

- ① Maximum Power  
 ② Military Power  
 ③ Normal Power  
 ④ Detailed descriptions of Radius and Range missions are given on page 6

- ⑤ Limited by structure (Load Factor = 1.8)  
 ⑥ With drag chute  
 ⑦ Does not include 10,000 lb. water  
 ⑧ Limited by fuel capacity  
 ⑨ Initial buffet, flaps down, SL

Performance Basis:  
 (a) Data source: Flight Test polar and engine spec. data





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~~CONFIDENTIAL~~**NOTES**FORMULA: BOMBER RADIUS MISSIONS I, II & III

Take-off and climb on course to optimum-cruise altitude at normal power. Cruise out at long-range speed, increasing altitude with decreasing weight. Climb so as to reach cruise ceiling fifteen (15) minutes from target. Run into target at normal power, drop bombs, conduct two (2) minutes evasive action and eight (8) minutes escape at normal power. Cruise back to home base at long-range speeds, increasing altitude with decreasing airplane weight. Range-free allowances include (5) minutes normal-power fuel consumption for starting engines and take-off, two (2) minutes normal-power fuel consumption at combat altitude for evasive action, and thirty (30) minutes of maximum-endurance (four engines) fuel consumption at sea level, plus 5% of initial fuel for landing reserve.

FORMULA: BOMBER RANGE MISSION IV

Take-off and climb on course to optimum-cruise altitude at normal power. Cruise out at long-range speeds, increasing altitude with decreasing weight, until all fuel is consumed. Range-free allowances include five (5) minutes normal-power fuel consumption for starting engines and take-off, and thirty (30) minutes of maximum-endurance (4 engines) fuel consumption at sea level, plus 5% of initial fuel for landing reserve.

GENERAL DATA:

- (a) The prescribed fuel reserve for the Basic Mission is equivalent to the following reserve range at best-range conditions:

B-52G Bomber	{ 973 nautical miles
	{ 1055 nautical miles ( War Emergency )

- (b) The following electronic equipment is supplemental to that shown under electronics on Page 3:

Chaff Dispenser (2).....AN/ALE-1	(Complete Prov. Only)
Flare Dispenser.....AN/ALE-14	Recording Set (Time & light) AN/ASH-4
Fwd Surveillance.....AN/APS-81	Emerg. Sea Rescue.....AN/CRT-3
Bomb Nav Sys.....AN/ASB-9	Early Warning Radar (3).....AN/APS-54
Automatic Astro Comp.....MD-1	(Space Prov. Only)
True Head. Comp. Gr.....AN/AJA-1	Localizer.....AN/ARN-31
Gnd Spd & Drift Rdr.....AN/APN-89	TACAN.....AN/ARN-46
Fire Control Sys.....AN/ASG-15	IFF (air to air).....AN/APX-27
	IFF Interrogators (2)
	(aft & forward).....AN/APX-26

PERFORMANCE REFERENCE:

- Boeing Document D2-2159, subject "Substantiating Data Report - Models B-52G (J57-P-43W engines), Standard Aircraft Characteristics Charts".

REVISION BASIS: To change security classification.

(15 OCT 57)

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